ZHONE®

ITU-T G.993.2 Standards based 100/100Mbps VDSL2 IP-DSLAM

✓ *24-Port VDSL2 up to Profile 30a*

✓ *Multiple HDTV Channel Support*

✓ *Hardened for Outside Plant Deployment*

✓ *ADSL2+ Fallback Support*

✓ *2 SFP + 2 Built-In GE Uplink Ports*

✓ *VLAN/Bridge Forwarding with Quality of Service and Security features*

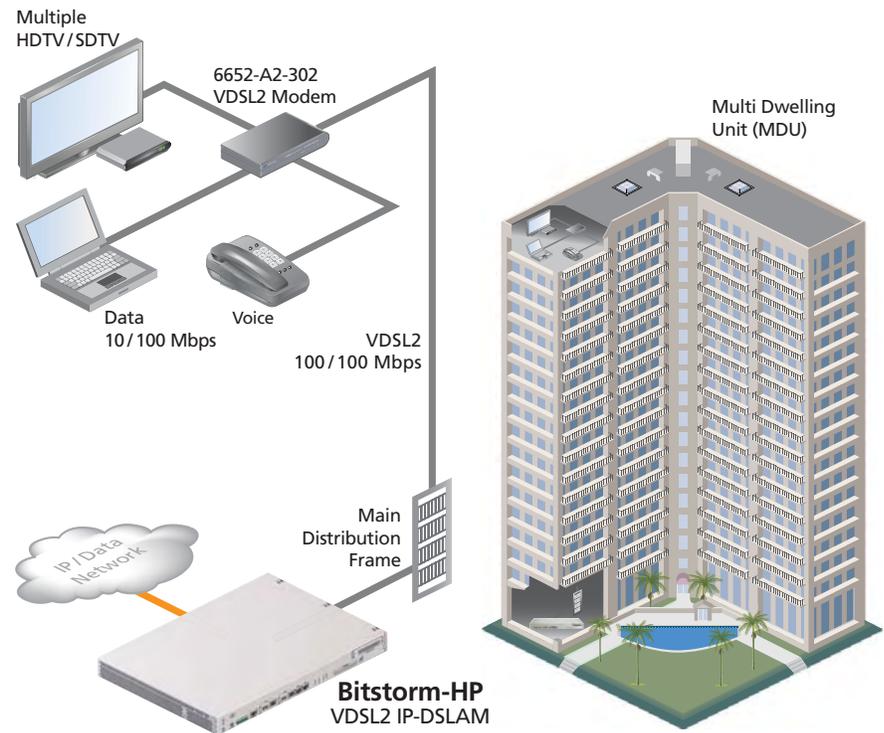✓ *Stacking support with Inband Management*

Bitstorm-HP is a 24-port VDSL2 IP-DSLAM family, featuring high performance and hardened design with efficient power and space considerations. Designed as a 1U high product, Bitstorm-HP is ideal for deployment in space constrained indoor MDU or, external cabinet locations taking advantage of short last mile loop for ideal VDSL2 rate/reach performance. Bitstorm-HP-160 uses latest VDSL2 silicon to support all 8 VDSL2 profiles up to Profile 30a and delivers 100/100Mbps Up/Down line-rate when paired with a Zhone VDSL2 CPE (6652-A2). Bitstorm-HP-150 supports up to Profile 17a and delivers 100Mbps Down, 50Mbps Up bandwidth. Both Bitstorm HP-160 and HP-150 fully interoprtate with Zhone VDSL2 CPE 6652-A2 (30a, Bridge/Router) and 6652-A1 (17a, Smart Bridge). Bitstorm-HP IP-DSLAMs also feature ADSL2 + fallback when connecting to a ADSL2 + CPE thus providing easy migration for users running legacy services while providing expanded revenue opportunities for operator's deploying new high-speed services.

Bitstorm-HP delivers line-rate performance and supports multi-play services implemented on powerful Network Processor. Bitstorm-HP-160 is architected with distinct control and data paths which allow high bit-rate services while supporting advanced L2/L3 features such as - DHCP (Option-82), IGMP Snooping/Proxy, IP/ARP Spoofing, Forced MAC Forwarding, QoS and Security/Filtering in either Bridged or, VLAN Switched operating modes.

Bitstorm-HP features an intuitive Web Graphical Interface for device configuration and management. It also supports complete set of xDSL MIBs for SNMP based management.

Bitstorm-HP is also available with built-in splitters (POTS, ISDN) and power (DC, AC) options.

Bitstorm-HP is ideally suited for deployment in Multi Dwelling Units and delivery of bandwidth intensive services such as HDTV, Video Conferencing, Interactive Gaming and symmetric business E-Line services. Bitstorm-HP supports dual Gigabit Ethernet uplinks which can be aggregated using standards based line aggregation protocol (LACP 802.3ad). This allows deep-fiber deployment and interface with Metro switches.

Operators providing business services can utilize rich traffic management and security features to provide guaranteed services and prevent malicious user behavior. Some of the supported features are: - Prevent traffic flooding between line bridge ports - Configurable rate-limit per bridge port per VLAN - IGMP broadcast limit per line port - MAC address spoofing - IP/ARP spoofing - IP-Allow filter based on DHCP snooping - Forced destination MAC address forwarding

VDSL2 High Performance IP-DSLAM Family

Technical Specifications

Dimensions

- 44mm (Height) x 482mm (Width) x 304mm (Depth)

Power

- DC: -48V (-42V to -56V) Dual A+B input terminal
- AC: 100V - 240V (50~60Hz)

Interfaces

- 24 VDSL2
- 2 100/1000Mbps Ethernet Combo Ports - Electrical or, Optical (SFP)
- Management Ethernet
- Serial Console

Standards Support

- VDSL2 ITU-T G.993.2
- Profile 8a/8b/8c/8d/12a/12b/17a/30a
- ADSL2+ Backward Compatible
- Loop Diagnostic SELT*/DELT
- 802.1q VLAN, 802.1p VLAN Priority
- VLAN Q-in-Q
- Spanning Tree Protocol (IEEE 802.1d/w)
- Link Aggregation (IEEE 802.3ad)
- DHCP (Option 82)
- RFC 4562: Forced MAC Forwarding

Protocol Support

- PPPoE Intermediate Agent (DSL-Forum)
- IGMP Snooping/Proxy
- Ethernet RMON
- VDSL/ADSL Performance Counters
- 15-min 1-day counters for history record

Management

- Web-based Graphical User Interface
- Telnet CLI
- RFC 1213 SNMP MIB II
- RFC 1493 Bridge MIB
- RFC 1643 Ethernet MIB
- RFC 2674 Q MIB
- RFC 1757 RMON MIB, group 1,2,3,9
- ADSL MIB
- VDSL MIB

Regulatory Compliance

- ITU-T K.20, K.21
- ETSI 300-019, 300-386
- EN 60950
- ROHS Compliance
- Conform to CE requirements

Operating Requirements

- Operating Temperature (DC): -40°C to 65°C
- Operating Temperature (AC): 0°C to 65°C
- Relative Humidity: Up to 95% (non-condensing) at 35°C

Ordering Information

Bitstorm VDSL2 30a IP-DSLAM

Bitstorm-HP-160-DC	24-Port VDSL2 IP-DSLAM, -48V DC Power
Bitstorm-HP-161-DC	24-Port VDSL2 IP-DSLAM, -48V DC Power, with 600 Ohm Splitters
Bitstorm-HP-162-DC	24-Port VDSL2 IP-DSLAM, -48V DC Power, with 900 Ohm Splitters
Bitstorm-HP-160-AC-NA	24-Port VDSL2 IP-DSLAM, 110V North America AC Power
Bitstorm-HP-160-AC-EU	24-Port VDSL2 IP-DSLAM, 220V Euro AC Power
Bitstorm-HP-161-AC-EU	24-Port VDSL2 IP-DSLAM, 220V Euro AC Power, with 600 Ohm Splitters
Bitstorm-HP-162-AC-NA	24-Port VDSL2 IP-DSLAM, 110V North America AC Power, with 900 Ohm Splitters

Bitstorm VDSL2 17a IP-DSLAM

Bitstorm-HP-150-DC	24-Port VDSL2 IP-DSLAM, -48V DC Power
Bitstorm-HP-151-DC	24-Port VDSL2 IP-DSLAM, -48V DC Power, with 600 Ohm Splitters
Bitstorm-HP-152-DC	24-Port VDSL2 IP-DSLAM, -48V DC Power, with 900 Ohm Splitters
Bitstorm-HP-150-AC-NA	24-Port VDSL2 IP-DSLAM, 110V North America AC Power
Bitstorm-HP-150-AC-EU	24-Port VDSL2 IP-DSLAM, 220V Euro AC Power
Bitstorm-HP-151-AC-EU	24-Port VDSL2 IP-DSLAM, 220V Euro AC Power, with 600 Ohm Splitters
Bitstorm-HP-152-AC-NA	24-Port VDSL2 IP-DSLAM, 110V North America AC Power, with 900 Ohm Splitters

VDSL2 BRIDGE CPE

6652-A2-302	VDSL2+ CPE (4-Port Ethernet) with Profile 30a (Euro)
6652-A2-300	VDSL2+ CPE (4-Port Ethernet) with Profile 30a (UK)
6652-A2-200	VDSL2+ CPE (4-Port Ethernet) with Profile 30a (NAR)
6652-A1-302	VDSL2+ CPE (4-Port Ethernet) with Profile 17a (Euro)
6652-A1-300	VDSL2+ CPE (4-Port Ethernet) with Profile 17a (UK)
6652-A1-200	VDSL2+ CPE (4-Port Ethernet) with Profile 17a (NAR)

Fiber SFP

SFP-GE-LX-1310-DLC	Long-Reach (10KM) Optical Gigabit Ethernet
SFP-GE-SX-850-DLC	Short-Reach (500m) Optical Gigabit Ethernet

VDSL2 30a Cable [Only for Bitstorm-HP-16x Products]

HP-160-VDSL2-CABLE-RJ21-15FT	Conversion Cable Horizontal T/R to Vertical T/R, 15Feet, RJ21 RJ21(Male)
HP-160-VDSL2-CABLE-RJ21F-15FT	Conversion Cable Horizontal T/R to Vertical T/R, 15Feet, RJ21 RJ21(Female)
HP-160-VDSL2-CABLE-OPEN-15FT	Conversion Cable Horizontal T/R to Vertical T/R, 15Feet, RJ21 Open

For more information about Zhone and its products, please visit the Zhone Web site at www.zhone.com or e-mail info@zhone.com

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